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Scale Formation in Primitive Music

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## SCALE FORMATION IN PRIMITIVE MUSIC

By FRANCES DENSMORE

### INTRODUCTION

IT is the purpose of this article to consider the subject of scale formation among primitive people by presenting certain observational data, grouped for convenience but not intended to prove any theory.

The statement is frequently made that primitive music is based on the pentatonic scale which comprises the first, second, third, fifth, and sixth tones of the diatonic octave ; this scale, however, represents an established musical basis and must have been preceded by an experimental period in which tones were used in smaller groups. What tones were these, and what interval relation did they bear to each other ? Was the initial tone a high tone, and if so what was the most common interval in the descending melody ? What was the most common interval relation between the first and last tones of the song ? These are some of the questions which present themselves to the student of primitive music : the answers must be based on actual musical performances of primitive people, and from the answers to these and similar questions may eventually be deduced some knowledge of the gradual formation of a musical scale.

In our consideration of this subject it is desirable that we concede music to be primarily a means of expression, spontaneous and intended solely for the satisfaction of the individual ; secondarily, or at the next stage of its development, a means of communication by which a mental concept is intentionally conveyed\* to another or other individuals ; and later, a cultivated art whose aim is to com-

bine the spontaneous element of the first phase, and the magnetic element of the second phase with a required technical skill and conformance to established canons.

Our first point of consideration must therefore be primitive music as a spontaneous means of expression.

Generally speaking, the instrumental music of this period is either a rhythmic pounding or the blowing of some instrument similar to a flute. Undeniably each of these has a direct bearing on our subject, but unfortunately the necessary data are not at hand for their analysis. Turning to the field of vocal musical expression we search for one or two features so commonly accepted as to form a safe basis for our study. The subject is so vast and its scientific analysis so new that our work at the present time can present only a portion of the truth, yet that presentation may lead the way to the ultimate establishment of fundamental facts.

For purpose of further analysis, let us note the predominance of the love song in all musical expression, next in volume being songs of grief, songs of the contemplation of nature, and songs of religious content.

During the Exposition at St Louis I studied the music of the uncivilized Filipino villages, comprising the Igorot, Negrito, Samal Moro, and Lanao Moro. Among all these tribes I found special emphasis upon the love song, and I even found one Mangyan, sole representative of his tribe, who said that his people sang only once and that was at courting time.<sup>1</sup>

The Hawaiian princess Kalaniana'ole recently told me that most of the old Hawaiian songs were love songs, next in number being the dirges.

A study of the music of the American Indian reveals a large number of love songs, but Indian music is neither so primitive as the Filipino nor so clear an entity as the Hawaiian. Each Indian tribe sings many songs learned from neighboring tribes, and it will be the labor of many years to collect sufficient songs of pure tribal culture to determine a relative number of love songs; but my observation among the Chippewa of Minnesota shows that these Indians

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<sup>1</sup> The music of the Filipinos, *American Anthropologist*, n. s., vol. 8, no. 4, Oct.-Dec., 1906.

are extremely fond of their love songs, and that many of them are widely known and are said to be very old. Human nature is essentially the same in civilized and uncivilized environment, and the shelves of our music stores will be found to contain a large proportion of songs of love and grief, next in number being songs of religious content and songs concerning the contemplation of nature.

In Lord Monboddo's *Origin of Language* (vol. 1, p. 469) Dr Blacklock says : "The first language among men was music : before our ideas were expressed by articulate sounds they were communicated by tones varied according to different degrees of gravity and acuteness."

I quote the following from *Progress in Language*, by Otto Jespersen, Ph.D., of Copenhagen : "Thoughts were not the first things to press forward and crave for expression ; emotions and instincts were much more powerful and more primitive."

Without entering further into proofs upon this point, let us accept an emotional origin for a portion of the musical expression of the race.

Our next question concerns the trend of the melodies which are the medium of this expression. Among several hundred Chippewa songs which I have recorded on the phonograph, I find the majority beginning on a high tone and ending on a low tone, the general trend of the melody being downward. This statement has been made concerning the music of other Indian tribes. I also found a descending trend in the *Amba* of the Negrito ; this was the only accurately repeated melody which I heard in the Filipino villages.

We are therefore accepting, as a basis for our present study, the prominence of songs of love and grief, and the marked tendency of primitive music to begin on a high tone, the melodic trend being downward. We do not, of course, claim that this melodic trend is universal. Having accepted these two general statements, we naturally seek an explanation of them.

Our opinion concerning the origin of music depends on our opinion of silence. There is a silence which is vibrant, and there is a silence which is stagnant—not dormant nor containing latent power, but absolutely lifeless. Through this stagnant silence there passes a wave of mental impulse ; this is repeated, it constitutes

itself a unit, the silence becomes vibrant, it becomes a medium of communication, and the mental impulse may, through this vibrant silence, be transmitted to minds which are sufficiently sensitive to receive it. From this intensity of vibration the song bursts forth, like lightning from a cloud. The intensity being reduced, the means of expression is changed to words of an extremely limited vocabulary; this is succeeded by an increased number of words until in profuseness of verbiage the more subtle means of communication are lost. The human race today is forgetting what silence is or can be. We are too noisy to know its possibilities. We seize the tools nearest at hand, and have too long depended upon words. The silent figures sitting motionless along the Ganges are monuments to the silence that died centuries ago.

But let us test our hypothesis inversely, keeping in mind that we are dealing with the expression of emotion, or, better, of mental action, and that this expression is being considered also as a means of communication. This inverse test is very simple, as human nature is the same everywhere. A shallow mental action, having, if you please, very slight vibration, finds its expression in a multitude of words. As intensity increases, the vocabulary decreases until very few words suffice. The next step is music as a means of expression, and we have the phrase that "thoughts can be expressed in music which can be expressed in no other way." Beyond this musical expression lies the vibrant silence in which neither words nor music are required as a means of communication.

Granted the vibrant silence through which, if we were sufficiently sensitive, we might communicate; granted a musical expression as its resultant, — what would be the tone which would spring forth? Would it not be the high tone which in all nature results from quick, strong vibrations? Do we not find here a possible explanation for the fact that many primitive songs begin on a high tone?

We must not forget our mysterious kinship with all that lives. Intensity of fear produces in bird and beast the high shrill cry, and intensity of distress produces the call for assistance. In all nature the love song and its prototype the love-call are intended to be far-reaching, and a tone low in vibration would not waken a response.

Before passing to the consideration of the melodic trend of

primitive emotional song, let us note the characteristics of certain Filipino love songs which I heard at St Louis.

In the Samal Moro villages the people sang for me by special arrangement ; no suggestions were made as to the selection of songs, but at the close of the performance I was told that the songs were all love songs and that they were improvised, the ability to improvise these songs being the standard of musical proficiency. These songs were rhythmic, and suggested the natural environment of the people, without being in the least imitative. The songs of the Samal Moro contained the swaying cadence of the sea, which was entirely lacking in the songs of the Lanao Moro whose dwelling is inland. In a similar manner I found the songs of the mountain-dwelling Negrito to contain rippling cadences suggesting their environment with its bird notes and mountain streams. The rhythm of the Moro love songs was most interesting, yet it would have been impossible to divide these songs by the small metric unit of two, three, or four counts which we habitually use in our modern music. The rhythm of these songs resembled the rhythm of good prose which we feel but cannot analyze because the rhythmic unit is beyond our grasp. Possibly the reason may be similar in the two instances. Each writer of literary distinction has his own peculiar rhythm by which we may occasionally recognize his work and which is an important factor in our enjoyment of it, though we may not always be conscious of its presence. This rhythm may be said to consist of the writer's individuality combined with his mental environment — rugged and forceful or gentle and reposeful. Thus the rhythm of the Moro songs reflected the individuality of the person who could freely improvise them, and the natural surroundings in which the singer lived. May we go farther and say, not that the rhythm *reflects* the individuality, but that it *creates* the individuality? These are deep problems.

If we grant an emotional origin to a portion of the musical expression of the race, and admit that an emotion seeks a high tone as its initial expression, we must next consider the first interval in the melodic descent from that tone.

In my desire to learn whether there were anything in the anatomy of the vocal organs to determine this interval, I consulted

an eminent comparative anatomist who stated that he knew of nothing in the vocal anatomy of either man or animals to determine intervals of tone. I then consulted an eminent physicist, asking whether there were any mathematical ratios in the relaxing of tension which could reasonably be applied to the ratios of vibration in a descending musical interval. He replied that he knew of no such ratios. I record these inquiries simply to show lines of investigation. As has been stated, there is evidence that musical expression in primitive man is influenced by his natural environment, but this influence implies a subjective state as well as a somewhat developed melodic sense and musical proficiency. Our present inquiry is more rudimentary and seeks to learn what interval is intuitively selected by the voice in descending from the first high tone of a song.

Certain observational data upon this point will now be presented. These data are taken from the fields of uncivilized music, ancient folk music, and ancient ecclesiastical music, the latter two being permissible, since, by the term "primitive music" as used in this connection, we understand simply music which has not been changed to conform to modern standards.

#### I. UNCIVILIZED MUSIC

In his work entitled *Primitive Music*, Wallaschek makes the following statement (page 146): "Music in Nukahiwa, Washington Islands, does not go beyond the minor third from E to G, except that it sometimes sinks to D. The minor third is always preferred." Also (page 148): "In the songs of the Asaba [Niger] people, a preference for the minor third is noticeable."

During my study of primitive music at the St Louis Exposition I found the Igorot songs beginning on a tonic and usually passing to the sixth, either by the descent of a minor third or by the ascent of a major sixth. This submediant tone was strongly accented. The number of these instances was sufficient to entitle the occurrence to special consideration.

In my study of Chippewa music I have found the oldest and simplest songs characterized by the descending interval of the minor third. It will be noted that the sixth (submediant) forms a convenient intermediate tone between the octave and the fifth (domi-

nant), then follows the descent to the third (mediant), this, like the interval of descent from the octave to the sixth, being the interval of a minor third. I have found many songs containing the interval-outline 8-6, 5-3, 1: it will be readily seen that this comprises all the tones of the pentatonic major scale except the second, and also that its structure consists of two minor thirds and one major third. If sufficient data were available it might be safe to infer that this is the original framework of the pentatonic scale, the scale being thought downward, after the manner of the old Greek scales. This hypothesis, however, must await further evidence for its confirmation.

## II. ANCIENT FOLK MUSIC

An eminent English authority has recently made the statement that the Irish folk music is the purest type now available for study, preserving most clearly its ancient characteristics. I therefore make the following citation from the field of Irish folk music. In *Ancient Music of Ireland*, by Bunting, published in Dublin in 1840, the author makes this statement: "The feature which in truth distinguishes all Irish melody . . . is not the negative omission (as of the fourth and seventh) but the very positive and emphatic presence of a particular tone, this tone being the sixth (submediant). This it is that stamps the true Scotie character (for we Irish are the original Scots) on every bar of the air in which it occurs."

This follows a statement that the Irish songs under consideration may or may not be on the pentatonic scale.

Importance is given to this very original position by the fact that Bunting is recognized as the greatest of Ireland's harpists. The records show that he was the leader of an assembly of harpists in 1799, more than forty years before the publication of this book, and his special study was the traditions of Ireland's ancient melodies.

## III. ANCIENT ECCLESIASTICAL MUSIC

The Gregorian chant has preserved for us the ancient music of the Roman Church, which was founded on the musical forms established by the Greeks. Before analyzing the printed Gregorian music, let us recall our mental impression of it. If anyone sings a chant descending a minor third with an accent, we at once exclaim,



“That chant belongs to the Roman Church!” — in brief, the instinctive testimony of the ear is that an accented descent of a minor third is characteristic of Roman Church music, which is known to be either Gregorian or strongly influenced by the Gregorian.

Seeking authentic information on this point, I consulted a text-book of the Roman priesthood. The title of this work is *Magister Choralis, A Theoretical and Practical Manual of Gregorian Chant for the Use of Clergy, Seminarists, Organists, Choir Masters, Choristers, &c.* The book is by the Reverend Francis X. Haberl, Cathedral Choir Master, Ratisbon, Ireland, and was published at Ratisbon in 1877.

I make my first quotation from the instruction for the chanting of the prayers. It is important to note that this is a primary form of the chant representing the phase of music most nearly akin to metric speech. This is shown by the fact that no definite musical measure is given for the rhythm, it being clearly stated that this is governed by the mental concept in the mind of the priest.

The author gives three forms for the chanting of the prayers: The first has the compass of a minor third, most of the words being chanted on the upper tone; this chant begins on the upper tone, sometimes uses the intermediate tone in descending to the lowest, and always uses a long note for the lowest tone of the minor third. This feature of the printed music strongly suggests an accent on the lowest tone of the minor third. The second form of the chant is entirely on one tone. In the third form of the chant all the words are sung on one tone, except at the close, where the voice falls a minor third.

The intoning of the Gospel admits of three inflections — before a mark of interrogation, before a period, and at the termination. For the two latter inflections the voice falls a minor third, one inflection having an intermediate passing tone, the other having none.

In the order for the consecration of certain articles on Holy Thursday, I find that all the six intoned sentences end with a descent of a minor third to a long note; this long note would naturally receive an accent. All these instructions are concerning the chants which are sung by the priest.

I have also examined a large number of the Gregorian chants

used by the choirs of the Roman Church, but the descent of the minor third is less in evidence on the printed page than I expected. This fact recalls the statement of the Irish harpist in regard to his folk songs, that "it is not the frequent occurrence of the sixth (submediant) but its special emphasis which characterizes this music, the peculiarity being most evident in a descending progression." It appears that the same is true of Gregorian music.

In my study of Chippewa music at Red Lake, Minnesota, where the Indians are more primitive than on the other reservations, I listened for this accent as I heard the Indian singers at the drum hour after hour, and I found that they were unmistakably accenting each descent of a minor third.

The sounding consecutively of two tones a minor third apart invariably gives the impression of a minor key, especially if the lower tone be either prolonged or accented. To this may be attributed the apparent minor tonality of Gaelic music as well as of the music of the Roman Church and the songs of primitive peoples. The statement may, I think, be safely made that neither of these classes of music contains a preponderance of minor keys. When the minor key occurs, it is not, at least in the songs which I have analyzed, an accompaniment to sorrowful emotions. Wallaschek also states that the minor keys have no connection with melancholy in their use by primitive peoples.

I have not found, either in records or in my personal experience, a prominence given to any interval except the minor third. From this we might infer that the minor third, especially in descending progression, is the principal interval of musical intuition. Such an assumption would, however, seem to conflict with the theory that primitive melody is based on the overtones of a given tone, since the principal overtone, beyond the octave, is the twelfth (octave of the dominant), not the sixth (submediant).

Before attempting to reconcile these theories, let us outline our subject more broadly. We have thus far considered music largely in its relation to individual expression; probably this was its original form, but in humanity of very primitive culture we find three phases of musical expression—personal, social, and ceremonial. Is it not possible that these three may be of different melodic development?

Having considered at some length the first of these phases, let us pass to a consideration of the second.

#### IV. SOCIAL MUSIC

Concerning the possible melodic development of social songs, I would refer to a paper by Dr W. Sabine, of Harvard University, entitled "Melody and the Origin of the Musical Scale," read before the meeting of the American Association for the Advancement of Science at Chicago in 1908. In it Dr Sabine reviewed the work of Dr Helmholtz, dwelling particularly on the fact that overtones are more apparent to the ear when a tone or succession of tones is sounded within a small enclosure, and noting that the richer melodic expression is found among the races inhabiting small dwellings.

Thus if we trace personal music back to the high tense note of love or grief, descending through intervals psychologically determined, we may also trace social melody to a gathering of people in some small enclosure where the overtones of drum or voice were discernible and in time constituted material from which melodies were constructed. Extended evidence is lacking to prove that these tones were grouped in the order represented by the modern major or minor scales. The Greek modes are the oldest authentic groups; in these the tone material corresponded approximately to that of the modern major scale, but the portions selected were such that only one of the three modes was similar to our major scale in the succession of its intervals, and that mode, like the other Greek modes, was thought *downwards*, so that the leading quality of the seventh was lost, this being one of the chief characteristics of the modern scale. These three modes were developed later into a complete system of fifteen modes. From these, Bishop Ambrose, in the Fourth Century, selected four to be used in the music of the Roman Church: none of these corresponded to either our major or minor scale. From these four, Pope Gregory, in the Seventh Century, developed the eight Gregorian tones on which Roman Church music is still founded. In one of these the tone succession corresponds to our major scale of C, but the tonic is F, — none is like our minor scale. Thus we see that the existence of the proper tone material does not of necessity imply its use in the form of major or minor scales or keys.

I quote again from *Magister Choralis*, by the Reverend Francis Xavier Haberl (p. 236): "Modern modes close with the chord of the dominant leading into the chord of the tonic, not so the old modes. Modern modes have a leading or sensible note, in the old modes you would search for it in vain. In modern pieces of music the close of each period and of the entire piece must be with the chord of the tonic, in Gregorian modes this is not necessary."

Also from M. Danjou in *Revue de Musique* for December, 1847: "Nothing is more complicated, more difficult, or more uncertain than the attempt to assimilate modern harmony with ancient tonality." However, Dr Haberl devised some very simple organ accompaniments for Gregorian chants, prefacing his book as follows: "We caution the organist against the mistake of regarding the flats or sharps in the beginning of the stave as the signature of our modern keys . . . they are placed there to preserve the original positions of the semi-tones of the mode and not to indicate a key."

The object of this digression is to show certain facts concerning the earliest recorded scale formation which may assist our analysis of Indian and other primitive melodies, the principal fact being that man possessed the tone material of the major scale many centuries before he established its present succession of intervals as his standard of tonality. Some Indian songs are unmistakably in the major key; others contain the tones of a major key, but no feeling of its tonality. So the old Greeks had one major scale and two others in which the same tones were used in a different sequence. With these precedents we need not be surprised if the tonality of an Indian song does not correspond with its signature: for instance, if a song apparently in the key of D fails to accord with an accompaniment composed of the principal chords of that key, showing no preference for its dominant chord and no desire to close with the chord of A followed by the chord of D. Such instances are rare, but the tonality of Indian songs is so difficult and perplexing a problem as to admit an hypothesis.

Passing from the musical to a more general aspect of primitive social music, I suggest as one of its earliest forms the conversational music in which the words are improvised. This music among the Negritos and Igorot was described in my study of Filipino music.

Dr J. R. Swanton found among the Tlingit of Alaska an "Angry Song" in which two men waged a war of words along the lines of a familiar tune, the man being considered the best singer who could most freely express himself in this way. Wallaschek records similar songs among the Damaras of Africa and Indians on the Klamath river in Oregon.

Such use of improvised words to a remembered melody would naturally precede the use of remembered words and a more organized social music.

#### V. CEREMONIAL MUSIC

Ceremonial music suggests a somewhat organized state of society in which a leader is appointed to express the thoughts of his followers. Among the Filipinos I found a phase of music in which the conversational form overlapped into ceremonial music; the song was similar to the Benedicite of the early Jewish Church, which is preserved to our own time.

A possible development of ceremonial music might be :

1st. Oral instruction or invocation.

2d. Metrical speech produced by prolonging certain words or syllables for effect.

3d. The chant, produced by changing from a modulated speaking tone to a singing tone.

The chant may be considered a characteristic form of ceremonial music: beyond this point the elements of social and personal musical expressions influence ceremonial music, producing hymns of personal or general import.

It seems reasonable to suppose that these three forms of musical expression may have existed when musical skill consisted chiefly in the ability to improvise. The development of music as an art is a different matter. Art is technic as well as beauty, and its expression must conform to certain established canons. Only in its highest expression is emotion allowed full sway. Music is still a means of expression, but it is governed by an intellectual mastery of underlying principles.

When the development of music as an art is begun, the experimental period of scale formation is ended.

RED WING, MINNESOTA.